Monitoring the Indonesian Throughflow in Makassar Strait

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The transfer of tropical Pacific water into the Indian Ocean through the Indonesian seas, the so called The Indonesian Throughflow (ITF), is a significant part of the ocean system of interocean fluxes, ocean-scale heat and freshwater budgets and sea-air fluxes. The ITF is believed to provide an interactive link with the ENSO and Asian monsoon climate features. Additionally, the ITF to a large extent governs the overall oceanographic stratification, circulation and ecosystems within the Indonesian Seas.

The ITF amounts to ~12 Sv, 80% of which is channeled through Makassar Strait. The 45 km wide Labani constriction of Makassar Strait near 3°S is an ideal place to measure the bulk of the ITF. There the throughflow was measured during the NSF funded INSTANT program from January 2004 to November 2006, and by the NSF funded Arlindo program from December 1996 to July 1998.

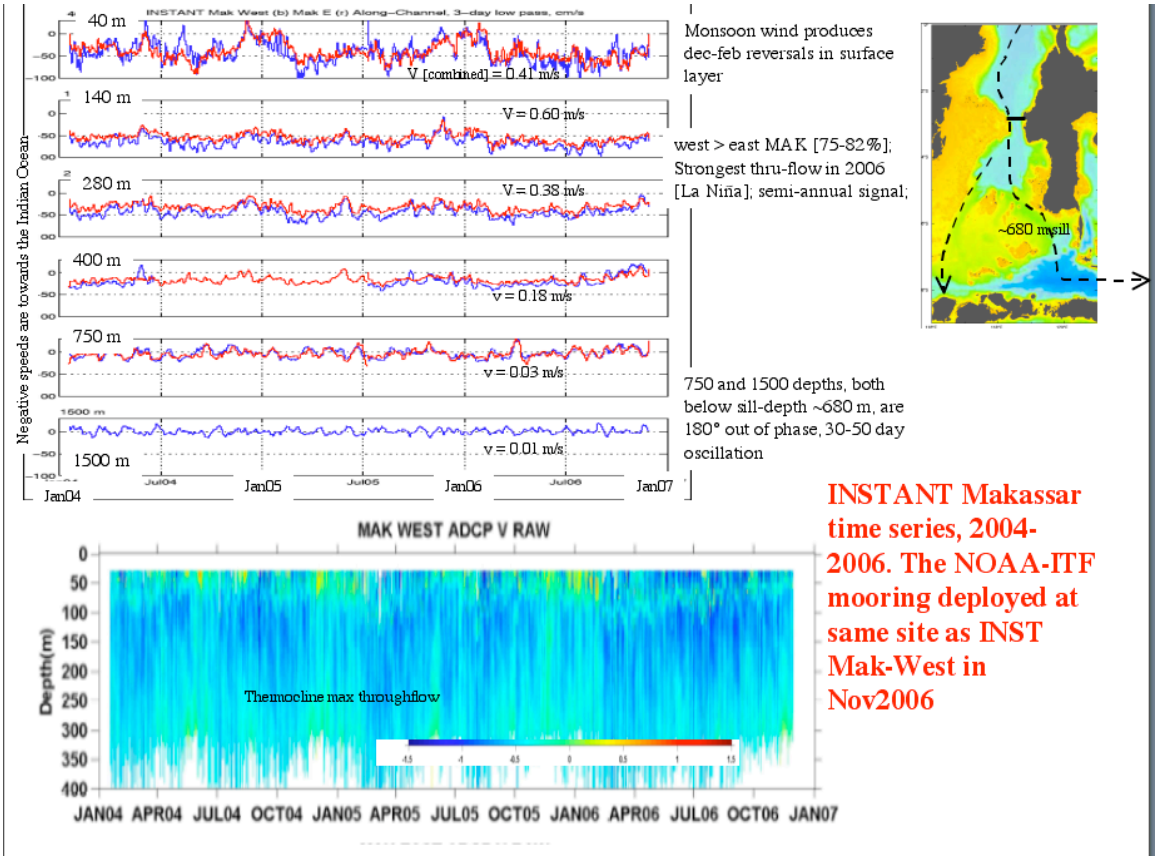

Figure 1 The time series from the ~3 year January 2004- November 2006 INSTANT record in Labani Passage of Makassar Strait. The NOAA-ITF mooring [see figure 2] was deployed in November 2006 at the same site as INSTANT MAK-West [blue line in time series].

Immediately after the INSTANT moorings were recovered in November 2006, with NOAA OCO support, a single mooring at the site of the INSTANT MAK-WEST 2°51.11'S; 118°27.33'E was deployed [Figure 2]. This was done so as not to have a data gap between the INSTANT time series and a long term NOAA OCO sponsored ITF measurement program, hopefully to begin in late 2008. A transfer function based on the Arlindo and INSTANT time series will allow the MAK-WEST data to be converted to a full Makassar ITF. It is important that a long-term time series be based at the MAK-WEST site where we have the proper archived records for it to serve as a reliable indicator of the Makassar and perhaps the entire ITF. The NOAA Makassar mooring will be recovered and redeployed in November 2008, officially beginning the long-term measurement program.

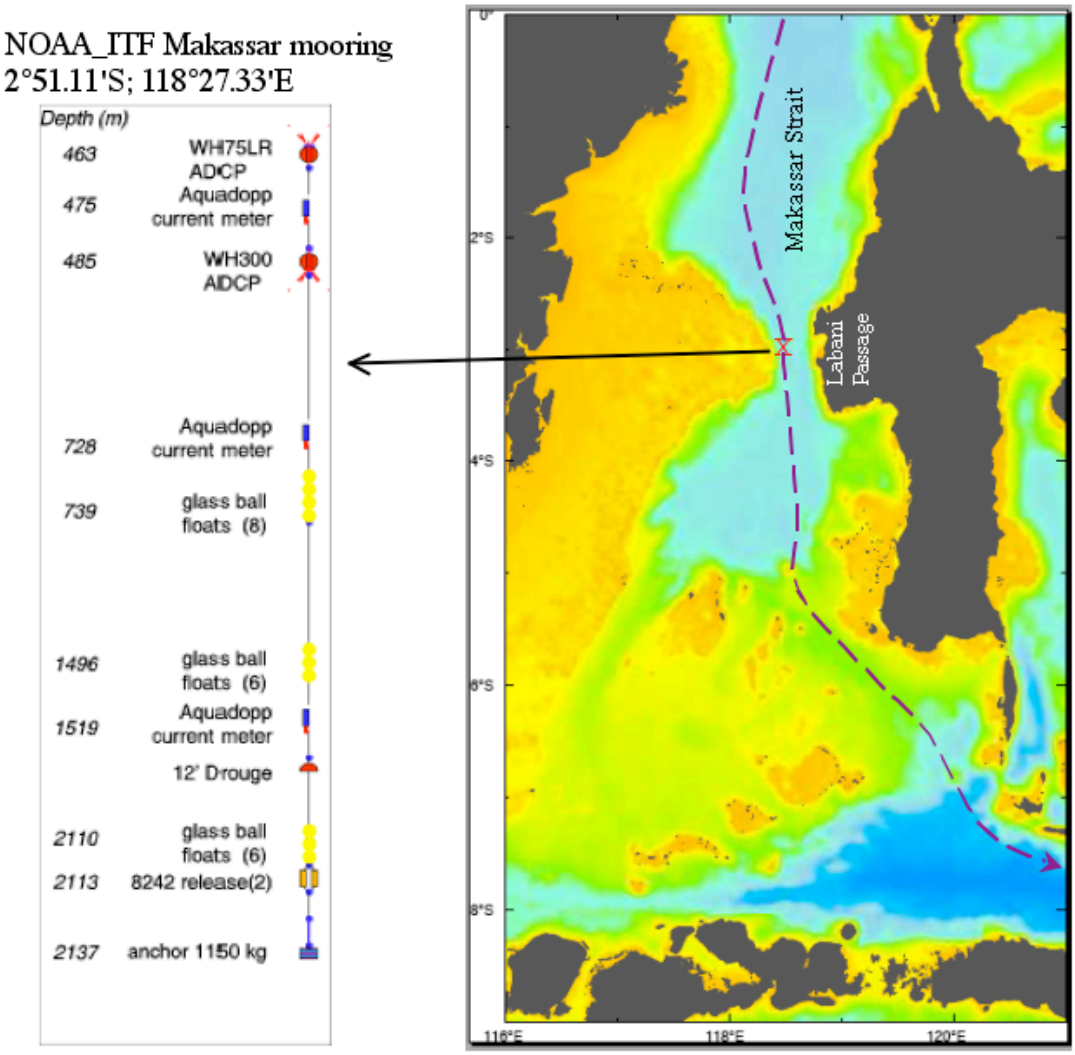

Figure 2: Configuration of the NOAA-ITF Makassar mooring deployed in November 2006 at the Red X in the bathymetry map of Makassar Strait.